

Claims

- [c1] 1.A method for cutting a wire formed on a semiconductor substrate, the method comprising:
forming a cut portion by scanning the semiconductor substrate with a focused ion beam to cut the wire; and
forming a clear region free of stray material from the wire, continuously from the cut portion by scanning the semiconductor substrate with the focused ion beam.
- [c2] 2.The method according to claim 1, wherein said forming a cut portion includes forming a first cavity that cuts the wire by scanning the semiconductor substrate with the focused ion beam, and said forming a clear region includes forming a second cavity and a third cavity that intersect the first cavity on opposite sides of the wire.
- [c3] 3.The method according to claim 2, wherein the first, second, and third cavities when combined form an H-shaped pattern.
- [c4] 4.The method according to claim 2, further comprising:
setting positions of two points lying on opposite ends of the cut portion;
wherein said forming a cut portion includes forming the

first cavity based on the positions of the two points, and said forming a clear region includes forming the second and third cavities continuously with the first cavity based on the positions of the two points.

[c5] 5.The method according to claim 1, wherein the wire is made of copper.

[c6] 6.A method for cutting a wire formed on a semiconductor substrate, the method comprising:
forming a cut portion by scanning the semiconductor substrate with a focused ion beam to cut the wire; and
forming a redundant portion, continuously from the cut portion, for preventing stray material from the wire from being formed continuously with the cut portion.

[c7] 7.A method for cutting a wire formed on a semiconductor substrate, the method comprising:
setting a cutting mode of the wire in accordance with the material of the wire;
forming a cut portion by scanning the semiconductor substrate with a focused ion beam to cut the wire; and
forming a clear region free of stray material from the wire, continuously from the cut portion by scanning the semiconductor substrate with the focused ion beam when a predetermined cutting mode is set.

[c8] 8.The method according to claim 7, wherein said forming the cut portion includes forming a first cavity that cuts the wire by scanning the semiconductor substrate with the focused ion beam, and said forming the clear region includes forming a second cavity and a third cavity so that the first, second, and third cavities when combined form an H-shaped pattern.

[c9] 9.The method according to claim 7, wherein the predetermined cutting mode is a cutting mode for a copper wire.

[c10] 10.A device for cutting a wire formed on a semiconductor substrate, the device comprising:
a processor for cutting a wire by scanning the semiconductor substrate with a focused ion beam; and
a controller, connected to the processor, for controlling the scanning with the focused ion beam, the controller controlling the processor to form a cut portion by cutting the wire and forming a clear region free of stray material from the wire, continuously from the cut portion.

[c11] 11.The device according to claim 10, wherein the controller controls the processor to form a first cavity that cuts the wire and a second cavity and a third cavity that intersect the first cavity on opposite sides of the wire.

- [c12] 12.The device according to claim 11, wherein the controller controls the processor so that the first, second, and third cavities when combined form an H-shaped pattern.
- [c13] 13.The device according to claim 11, further comprising an input section for enabling positions of two points lying on opposite ends of the cut portion to be set.
- [c14] 14.The device according to claim 13, wherein the controller controls the processor to form the first, second, and third cavities based on the positions of the two set points.
- [c15] 15.The device according to claim 10, wherein the controller includes a memory for storing pattern data of at least one processing pattern formed on the semiconductor substrate, the controller controlling the processor with the pattern data.
- [c16] 16.The device according to claim 15, wherein the memory stores plural pieces of the pattern data in correspondence with various types of wire material, and the controller changes the processing pattern with reference to the plural pieces of pattern data stored in the memory.